

CLAIMS

1. An optical device intended to treat an incident
5 X-ray beam, said device comprising:

- a monochromator (M) and
- an optical element (20) for conditioning the
10 incident beam whose reflective surface is able to
produce a two-dimensional optical effect in order
to adapt a beam in destination of the
monochromator, said optical element comprising a
surface reflective to X-rays of the multilayer
15 structure type,

characterised by the fact that said reflective
surface consists of a single surface, said reflective
surface being shaped according to two curvatures
20 corresponding to two different directions.

2. A device according to the preceding claim,
characterised in that said single reflective surface is
of the multilayer type with lateral gradient.

25

3. A device according to one of the preceding
claims, characterised in that the single reflective
surface comprises a depth gradient.

30

4. A device according to one of the preceding

claims, characterised in that said reflective surface is shaped in each of the said two different directions in order to produce two respective one-dimensional effects.

5

5. A device according to one of the preceding claims, characterised in that said reflective surface has a geometry which is substantially circular in a first direction and substantially parabolic in a second
10 direction.

6. A device according to the preceding claim, characterised in that said first direction is the saggital direction of the optical element and the
15 second direction is the meridional direction of the optical element.

7. A device according to one of Claims 1 to 4, characterised in that said reflective surface has a
20 substantially toroidal geometry.

8. A device according to one of Claims 1 to 4, characterised in that said reflective surface has a
25 substantially paraboloidal geometry.

9. A device according to one of Claims 1 to 4, characterised in that said reflective surface has a
substantially ellipsoidal geometry.

30

10. A device according to one of the preceding

claims, characterised in that said reflective surface is able to reflect rays of the lines Cu-K α or Mo-K α .

5 11. A device according to one of the preceding claims, characterised in that the monochromator is a germanium crystal and the optical conditioning element comprises a W/Si multilayer coating with lateral gradient.

10 12. A device according to one of the preceding claims, characterised in that the optical element of the device has a length of around 2 cm, said device being able to be used with a source of X-rays whose size is around a few tens of microns by a few tens of
15 microns, in order to produce a sample spot of around 300*300 microns.